

Washington State On-Site Wastewater Technical Review Committee

Minutes for the
April 9-10, 2003 Meeting
Approved on June 11, 2003 by Vote of the Committee



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Note: The minutes periodically refer to “Items.” Items are documents containing information on a subject being discussed. Items, with their descriptions/titles, are noted at the end of the minutes in the section entitled “List of Meeting Materials.

MEETING ATTENDEES

Members Present

1. Kevin Barry, Eastside Env. Hlth
2. Scott Jones, Engineers
3. Eric Knopf, Designers, Installers, O&M
4. Pam Denton, Local Env. Health staff
5. Tom Rogers, Proprietary Devices
6. Mike Vinatieri, Westside Env. Hlth

DOH Staff

1. Laura Benefield (Day 1)
2. Kelly Cooper (Day 1)
3. Mamdouh El Aarag (Day 2)
4. John Eliasson (Day 1)
5. Mark Soltman (Day 1)
6. Selden Hall (Day 1)
7. Dave Lenning, TRC Coordinator

Guests Who Signed In or Presented

1. David Allan, MultiFlo-Nayadic dealer
2. Mark Allen, Seattle-King County Health
3. Allison Blody, Biomicrobics FAST (Day 1)
4. Keith Grellner, Bremerton-Kitsap Health (Day 1)
5. Peter Lombardi, Orenco Systems Inc.
6. Mark Ludwig, JK Polysource/Press-Seal Gasket Corp. (Day 2)
7. Braden Marshall, Polylok/MCM (Day 2)
8. Ken Moody, UV Disinfector, EES (Day 1)

Day 1 – April 9, 2003

INTRODUCTION

Tom Rogers, Chair, called the meeting to order at approximately 10:15 a.m. on April 9, 2003 in the meeting room of the BEST Inn in Ellensburg. The meeting began with brief introductions by each committee member, DOH staff, and the interested parties in the audience.

MINUTES

March 12, 2003 Meeting Minutes Adoption – Changes needed: On page 1 in the “Members Present” list, remove “(Day 1)” after Scott Jones’ name; on page 5, delete item 8.i. By unanimous vote, the committee approved the March 12, 2003 TRC meeting minutes as amended.

ADMINISTRATIVE MATTERS

Dates were set for meetings for the last half of 2003: September 3-4, October 8-9, and December 10-11

Summary of Technical Discussions:

1. **Technical Issue #12B – Linear Loading Rates**
 - a. Selden Hall summarized his issue research report on linear loading rates (see **Item 1**) using a PowerPoint presentation (see **Item 2**).
 - i. Intuitively, we’ve all known for a long time that long and narrow across the slope is desirable.
 - ii. The concept of linear loading rates was the rationale used in limiting reductions in mound bed sizing to the width, not the length.
 - iii. As soils get tighter, the allowed linear loading rates get lower.
 - iv. As the infiltration distance (vertical separation) gets greater, the allowed linear loading rates get greater.
 - v. As the subsurface slope gets greater, the allowed linear loading rate gets greater.
 - b. David Allan asked if linear loading rates applied to serial distribution the same way they can apply to parallel distribution. Selden responded that there should be no difference between serial and parallel distribution.
 - c. Kevin Barry stated he can accept that a wider bed on a slope is not desirable. He asked how big an area around a system is being looked at. How close can systems be from each other? He stated that this topic is appropriate for a guidance document, not in a table in the rule.
 - d. Eric Knopf asked about linear loading rates with respect to BOD. Selden Hall responded that BOD is primarily an infiltrative surface sizing issue as BOD is quickly removed in the soil.
 - e. John Eliasson suggested that linear loading rates are a more critical design element if we’re looking at reducing drainfield size due to reduced BOD, especially if the length is reduced as part of the drainfield size reduction.
 - f. Selden Hall’s conclusions were:
 - i. Hydraulic linear loading rates are a key design element for shallow soils.

- ii. Horizontal movement of water is dependent on the characteristics of the soil, depth of permeable soil and the slope of the impermeable subsurface horizon.
- iii. Tyler has promoted this phenomenon as crucial to good design where soils are shallow. He offers a table of relationships between LLR and the soil and site characteristics.
- g. The committee answered the following questions:
 - i. Are linear loading rates an important part of designing systems in WA? **Yes**
 - ii. Should we include linear loading rates in Washington's design requirements? If yes, how should we include this factor? ***They should be spoken to in appropriate places in appropriate RS&Gs.*** Discussion included:
 - 1) Should linear loading rates be included in the rule on a list of items that designers should consider? The committee concluded that linear loading rates should not be in the rule.
 - 2) Designers should be accounting for linear loading rates. Appropriate references to linear loading rates in RS&Gs should be sufficient.
 - 3) Controlling bed width in a mound speaks to the soil depth rationale for linear loading rates. The other two factors (soil type and subsurface slope) aren't accounted for.
 - 4) Other RS&Gs should include references to linear loading rates. Maybe the general reminder to designers could be included in the "Effluent Quality Based Drainfield."
 - 5) There was some concern with local health jurisdictions that make RS&Gs a local requirement.
 - 6) There also was some concern that if linear loading rates are not included in the rule, designers may ask, "Show me where it says I have to consider linear loading rates."
 - 7) Climate also affects linear loading rates – amount of rainfall, exposure to sun, etc.
- h. The summary of this discussion:
 - i. The technical issue report is a good one.
 - ii. The concept is valid.
 - iii. Do not place in the rule, but place as appropriate in RS&Gs.
 - iv. Consider linear loading rates as guidance documents are reviewed and revised. Place the information in discussion boxes.
 - v. Linear loading rates are important and should be considered by designers and regulators.

2. Technical Issue #1 – Treatment Standards 1 & 2

- a. John Eliasson summarized the annotated bibliography he developed (see **Item #3**). This report was developed in response to the committee's request for further information on whether treatment level C should have a fecal coliform count of 10,000/100 ml (as has been voted on) or 50,000/100 ml.
- b. Mike Vinatieri asked if studies mentioned the formation of biomats.
- c. Kevin Barry – Looking at Table V in the report, when you go beyond 10^4 you get less reliable numbers and a lot more variation. Thus, 10^4 is a good number.
- d. Mike Vinatieri – Looking at Table IV in the report, he believes 50,000 should be sufficient, especially if we can avoid using disinfection.
- e. Mike Vinatieri noted the findings of an article in the latest issue of Small Flows Quarterly, a copy of which was handed out to committee members (see **Item #4**).
- f. David Allan asked what testing will be required to meet the fecal coliform numbers. Kevin Barry responded that NSF standard 40 will be used for ATUs and research results for non-proprietary technologies like sand filters and recirculating gravel filters.

- g. Tom Rogers asked if there was any reason to change the decision (10,000 fecal coliform/100 ml). No response was given. Thus, the committee's decision stands.
- h. Mike Vinatieri requested that John Eliasson send out copies of the Bohrer and Converse paper.

3. Technical Issue #18 – Stormwater

- a. Selden Hall summarized his staff report on stormwater (see **Item #5**)
 - i. The current policies and guidance that exist for stormwater.
 - ii. Who administers the stormwater program
 - iii. How stormwater rules affect on-site sewage systems.
 - iv. Currently, there is little coordination between local stormwater and on-site sewage programs.
- b. A discussion ensued of the issues and problems faced at the local level.
- c. There was general agreement that stormwater is an important issue that should be addressed. The committee recommended that staff draft options for addressing stormwater in the rule:
 - i. In the site evaluation section, include "stormwater features" in the list of encumbrances.
 - ii. In the section dealing with developments, subdivisions and lot sizes, add "stormwater features" to the list of items that need to be addressed.
 - iii. In the design section, add "stormwater features" to the list in the current subsection WAC 11501(2)(b).

Day 2, April 10, 2003

4. Technical Issue 24B – Wastewater tanks

- a. The committee briefly reviewed the 1997 draft of "Standards for Wastewater System Tanks." The discussion included the following:
 - i. Tom Rogers indicated his concern that septic tank manufacturers may have to get new forms to do what is being suggested. The committee stressed that septic tank manufacturers in the state be made aware of what's being proposed as soon as possible.
 - ii. Tom Rogers questioned the suggested size of the compartments (first compartment to be 1/2 to 2/3 of the entire volume). After discussion, the committee agreed to leave the size as proposed.
 - iii. Mike Vinatieri, referring to subsection 3.5.2., talked about the size of access openings. Dave Lenning reminded the committee that they had voted during the February meeting to have a 24 inch diameter opening and that at least one manufacturer of a polyethylene tank had exhibited concern because their tank has a 20 inch opening. Changing this would cost them a lot.
- b. Mamdouh El Aarag discussed his response (see **Item #6**) to the committee's request for information on ports and slots.
 - i. After relatively brief discussion, the committee agreed that ports and slots should be allowed.
 - ii. The location of the slots should be at the same depth as the bottom of outlet tees or baffles – 30-40% of the liquid depth, as measured from the top of the liquid.
 - iii. The opening should have a minimum area of 12 square inches with a vertical dimension of 4 inches.
- c. Mark Ludwig from Press-Seal Gasket Corporation and JK Polysource. In his presentation he:
 - i. Gave a brief history of the companies.

- ii. Showed examples of products to help assure openings in the vertical external walls of wastewater tanks are watertight.
 - iii. Indicated that in 1998 North Carolina was the first state to adopt a statewide requirement for a watertight seal – required seals that met ASTM C-923.
 - iv. Indicated that in 1999 Snohomish County in Washington require watertight seals.
 - v. Summarized ASTM C-923, especially sections 4 and 7.
 - vi. Talked about black/red plastic seals, compression seals, and cast-in boots.
 - vii. Walked the committee through examples of what was being required in regulations of a state (Indiana) and two counties (Snohomish County Washington and Washtenaw County Michigan, and gave some suggestions to consider when writing specifications.
- d. Discussion then ensued on whether the ASTM specification for watertight seals should be in rule or guidance.
- i. Tom Rogers indicated there are other ways to assure watertightness and this standard doesn't need to be specified.
 - ii. Scott Jones – specifying ASTM C-923 in a RS&G makes sense.
 - iii. Kevin Barry – maybe add to subsection 3.8.1.4 of the proposed tank standards – watertight, allow deflection, etc.
 - iv. Scott Jones added a couple other desirable characteristics – flexible, rubber-type material, resilient, deformable, polyisomer.
 - v. **Motion:** By Scott Jones – Adopt ASTM C-923 to assure watertightness for inlets and outlets as part of a wastewater tank guidance document.
 - 1. **Second:** Kevin Barry
 - 2. **Vote:** Yes – 6, No – 0
- e. Mamdouh El Aarag then summarized his response (see **Item #6**) to the committee's request for on-site testing for watertightness.
- i. Tom Rogers indicated he recognized the need for watertight tanks, but each tank does not need to be tested. Maybe spot checks or some other mechanism to determine if tanks are watertight should be used.
 - ii. Scott Jones – the standard tank we see now is a superior product. There should be a provision to test tanks on sites that have high water tables.
 - iii. Kevin Barry – If testing is required by a local health jurisdiction or a designer, the testing should be done as per the proposed standard (ASTM C-1227-02). (See **Item 7** for three ASTM standards)
 - iv. Pete Lombardi – even though there are risks, vacuum testing can be done. The equipment costs about \$1500. This avoids having to fill each tank with water.
 - v. Scott Jones stated he looks at all tanks that are part of his design. They are filled with water and he doesn't want to see any leakage.
 - vi. Kevin Barry – Testing for watertightness should not be required for every tank.
 - vii. Pam Denton – If watertightness testing is required, make sure the guidance document gives sufficient detail on how to do it.
 - viii. Mike Vinatieri – Doesn't see a problem with the proposed language as it says "should."
 - ix. Pete Lombardi – Let's get this right and require on-site testing.
 - x. **Motion:** by Scott Jones – Accept the proposal (section 2 of the draft installation standards – see **Item 8**) as written and place in a guidance document.
 - 1. **Second:** Mike Vinatieri
 - 2. **Vote:** Yes – 6, No – 0
- f. Mamdouh El Aarag walked the committee through the draft installation standards (see **Item #8**)
- i. Committee decisions on garbage grinders and grinder pumps during the February meeting had been inserted in subsection 3.1.

- ii. Subsection 3.1.4 – needs to refer to recirculating gravel filter RS&G, not the sandfilter guideline.
- iii. Subsection 3.1.5 – Can be deleted as this detail is in the pressure distribution RS&G.
- iv. Subsection 3.2.1.1 – change to: “Cleanout and inspection accesses shall be located at or above finished grade.”
- v. Subsection 3.4.5 – Delete everything after the first sentence.
- vi. Subsection 3.4.6 – Replace ASTM C-564 with ASTM C-923. Check on ASTM C1173 and see if it applies.
- vii. Subsection 3.5 – A brief discussion of outlet filters/screens occurred, with reference to the staff report on outlet filters (see **Item #9**). The committee reached unanimous agreement on the following:
 - 1. It is the responsibility of the designer to select an outlet filter for a particular design.
 - 2. The Department of Health should not get into a review and listing process for outlet filters.
 - 3. In a guidance document, state that effluent filters “should” be used. Pull in the specifications for outlet filters that are currently located in the pressure distribution RS&G.
- viii. Subsection 5 – When a watertightness test is done, a report of the test results is needed.

ADMINISTRATIVE/OTHER ISSUES

- 1. The next regularly scheduled meeting will be June 11-12, 2003 at the same location in Ellensburg. At a minimum, discussion items will include:
 - a. Geotextiles
 - b. Generic RS&G for upflow filters
 - c. One last review of priority list of technical issues developed for the RDC process.
- 2. The meeting was adjourned

MEETING MATERIALS1

Meeting Agenda – April 9-10, 2003

Item #1 – Technical issue report on linear loading rates submitted by Selden Hall

Item #2 – Copy of PowerPoint presentation on linear loading rates submitted by Selden Hall

Item #3 – Annotated bibliography “Fecal Coliform Reduction in Soil Using Aerobically Treated Effluent” submitted by John Eliasson.

Item #4 – Copy of article “Performance Evaluation of a Recirculating Sand Filter and Peat Filter in West Virginia” excerpted from the Small Flows Quarterly, Volume 4, Number 1, Winter 2003

Item #5 – “Stormwater and On-site Sewage Systems” staff report submitted by Selden Hall

Item #6 - “Sizes and Locations of Ports and Slots” staff response submitted by Mamdouh El Aarag

Item #7 – Standards for Installation and Use of Wastewater System Tanks - draft standards and guidance developed by DOH staff

Item #8 – ASTM standards (C-1227-02, C-923-00, C-564-97)

Item #9 – “Technical Issue #29 – Outlet Filters (Revised for February 2003 meeting) - staff report submitted by David Lenning

¹ All listed meeting materials are maintained by the Department of Health in a meeting manual entitled: *Technical Review Committee Meeting, April 9-10, 2003*. For further information, please contact the Department of Health’s Wastewater Management Program at (360) 236-3062.